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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,089	08/09/2001	Sinichi Ishibashi	M1971-98	4097

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EXAMINER	
CULBERT, ROBERTS P	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/927,089	ISHIBASHI ET AL.	
	Examiner	Art Unit	
	Roberts Culbert	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/18/02* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-18, drawn to a method, classified in class 216, subclass 22.

II. Claims 19 and 20, drawn to a product, classified in class 428, subclass 212.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case that the product as claimed can be made by another and materially different process such as one that does not require a continuous vacuum.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Louis Deljudice on 8/1/03 a provisional election was made with traverse to prosecute the invention of Group 1, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 19 and 20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The subject matter that is not enabling is the formation of the lubricant layer continuously in a vacuum. Referring to figure 3, and page 13 of the Specification, applicant teaches that the step of forming the lubricant layer (111) occurs after the substrate has been removed from the apparatus (101) that is under constant vacuum.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As the formation of the lubricant layer under vacuum is not described in the specification, as stated above, it is not clear if the applicant intends to claim this step as recited in independent claims 1 and 10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,635,037 to Chu.

Referring to figure 3, Chu teaches a method for forming a thin-film magnetic recording medium comprising the steps of forming a laminate (14 and 15) for magnetic data recording on a nonmagnetic substrate (12 and 13); said step of forming being a dry processes in a vacuum atmosphere; forming a protective layer (20) on said laminate; said step of forming a protective layer being a dry process in a vacuum atmosphere', plasma-etching a first surface of said protective layer (Col. 7, Lines 1-8); said step of plasma-etching conducted in a vacuum; conducting the steps of forming a laminate, forming a protective layer, and plasma-etching continuously (Col. 7, Lines 26-33); and forming a lubricant layer (17) on said first surface of said protective layer, whereby surface defects are minimized and surface quality is greatly improved.

Regarding claims 14 and 15, Chu teaches reactive ion etching or sputtering in the same vacuum apparatus to deposit the laminate and the protective layer (Col. 7, lines 26-33).

Regarding claims 16 and 17, Chu teaches that a mixture of oxygen and argon may be used in the plasma-etching process (Col. 7, Lines 4-8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,635,037 to Chu.

Referring to figure 3, Chu teaches a method for manufacturing a thin-film magnetic recording medium, comprising the steps of: forming a laminate (14, and 15) for magnetic data recording; forming a protective layer (20) on said laminate; plasma-etching a first outer surface of said protective layer (Col. 7, Lines 1-8); forming a lubricant layer (20) on said first surface, and conducting the steps of forming a laminate, forming a protective layer, and plasma-etching, continuously in a vacuum. (See Abstract)

Chu does not explicitly teach the step of forming the lubricant layer continuously in the vacuum as claimed. However, It would have been obvious to one of ordinary skill in the art at the time of invention to form the lubricant layer in the vacuum apparatus of Chu in order to reduce the number of pieces of application equipment used in the manufacturing process. Note that Chu does not exclude the step of forming the lubricant layer from the continuous process (Col. 7, Lines 26-33). In fact Chu states: "*the various steps in preparing the magnetic recording medium...can be successively performed in the same vacuum apparatus.*"

Regarding claims 2 and 3, Chu teaches reactive ion etching or sputtering in the same vacuum apparatus to deposit the laminate and the protective layer (Col. 7, lines 26-33).

Regarding claims 4 and 6, Chu teaches that a mixture of oxygen and argon may be used in the plasma-etching process (Col. 7, Lines 4-8).

Regarding claim 7, Cho teaches a dry process for forming the protective and laminate layers.

Regarding claim 5, Cho does not teach the use of a mixture of Ar O_2, and N_2 with a ratio of 6:1:3. However, Official Notice is taken of the fact that the compositions including Ar O_2, and N_2 are known in the art for the purpose of plasma etching a thin-film recording medium. It would

have been obvious at the time of invention to optimize the ratio of known etch gasses in order to control etch rate and material selectivity as one of ordinary skill in the art appreciates.

Regarding claim 8, Cho does not teach the use of a vacuum not more than $4x10^{-6}$ Torr. However, Official Notice is taken that the vacuum recited falls within the ranges generally accepted in the art for the purpose of forming a protective coating for a thin-film recording medium.

Regarding claims 9 and 10, Cho teaches the method of the invention substantially as claimed, but does not show the use of a Co-Cr alloy intermediate layer over the Cr-alloy undercoat layer, or the Co-Cr-Pt magnetic recording layer over the Co-Cr alloy layer. However, Official Notice is taken of the fact that the claimed layers are notoriously old in the art of forming magnetic recording thin-films. It would have been obvious to one of ordinary skill in the art to substitute the known alternative magnetic layers, as they are recognized equivalents in the art.

Regarding claim 11, Official Notice is taken that the use of N in a protective layer for a thin-film magnetic recording medium is old and well known in the art.

Regarding claim 12, Chu teaches that a mixture of oxygen and argon may be used in the plasma-etching process (Col. 7, Lines 4-8).

Regarding claim 18, as applied above, Cho teaches the method of the invention substantially as claimed, but does not show a mixture of Ar O_2, and N_2 with a ratio of 6:1:3. However, Official Notice is taken of the fact that the compositions including Ar O_2, and N_2 are known in the art for the purpose of plasma etching a thin-film recording medium.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents: 5,069,967; 5,589,263; 5,665,460; 5,690,838; 5,731,068; 5,837,357; and 5,985,410.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

R. Culbert

GREGORY MILLS
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